

WE CLAIM:

1. A system for providing at least one of content and a service to telephone service subscribers, comprising:
 - a) a Content/Service Provision Node (C/SPN) having a first interface with a call control messaging network and a second interface with a Content/Service Messaging Network (C/SMN), through which content/service messages are conveyed; and
 - b) Subscriber Access Control Equipment (SACE), wherein the at least one of content and a service is effected by the C/SPN with the SACE, in response to a call control message received by the C/SPN at the first interface.
2. A system as claimed in claim 1, wherein the C/SPN, accesses at least one of: an application server; a database; the Internet; an intranet; and subscriber profiles in the provision of the at least one of content and a service.
3. A system as claimed in claim 1, wherein call servers (CSs) communicate with the SACEs to relay messages between the C/SPNs and the SACE using the same protocol as used for the content/service messages.
4. A system as claimed in claim 3, wherein the CSs are adapted to relay at least a content of messages received from a respective SACE to an addressed C/SPN in a content/service message.

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5. A system as claimed in claim 3, wherein the CSs are adapted to relay content/service messages to an addressed SACE, without interpreting, translating or modifying the messages, except to determine the addressed SACE.
 6. A system as claimed in claim 1, wherein the content/service messages comprise Session Initiation Protocol (SIP) messages.
 7. A system as claimed in claim 1, wherein the content/service messaging network comprises a Common Channel Signaling (CCS) network.
 8. A system as claimed in claim 1, wherein the C/SMN comprises a Broadband Transport Network (BTN) which also provides for virtual trunking of bearer channels between the SACEs.
 9. A system as claimed in claim 3, wherein the CSs are also adapted to convert messages exchanged with the respective SACE into content/service messages exchanged with the C/SPN.
 - / 10. A method of enabling a content provider to provide at least one of content and a service to subscribers to a telecommunications network, said method comprising steps of:
 - a) enabling Call Servers (CSs) of the telecommunications network to exchange content/service messages with a Content/Service Provision Node (C/SPN) via a Content/Service Messaging Network (C/SMN);

- b) provisioning the CSs to relay at least a content of respective content/service messages to addressed Subscriber Access Control Equipment (SACE), and vice versa; and
- c) enabling the SACE to receive, process, and transmit at least the content of content/services messages, and, in response to receiving a content/service message, to perform an associated sequence of actions required to provide the at least one of content and a service.
11. A method as claimed in claim 10, wherein the messages the CSs exchange with respective SACEs conform to the same protocol as the content/service messages.
12. A method as claimed in claim 11, wherein the step of provisioning the CSs to relay messages comprises enabling the CSs to determine the addressed SACE or C/SPN of a received message, and to forward the received message to the determined address.
13. A method as claimed in claim 10, wherein the control signaling messages conform to Session Initiation Protocol (SIP).
14. A method as claimed in claim 10, wherein the content/service messages conform to Session Initiation protocol (SIP).
15. A method as claimed in claim 10, wherein the associated sequence of actions includes one of sending and receiving Pulse Code Modulated (PCM) data over a subscriber line specified in the content/service message.

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16. A method as claimed in claim 15, wherein the PCM data comprises an announcement played.
17. A method as claimed in claim 15, wherein the PCM data comprises at least one of music, entertainment content, information content, and advertising content.
- / 18. A method of providing extensible service features to telephone service subscribers, comprising a step of:
- a) exchanging content/service messages between a Content/Service Provision Node (C/SPN) and Subscriber Access Control Equipment (SACE), wherein the content/service messages conform to a signaling protocol that permits:
 - i) the delivery of an extensible payload, and
 - ii) a separate component protocol, indicated in messages, to specify how at least one datum in one field of the message is to be processed; and
 - b) using the content/service messaging to convey at least one of content and service information from the C/SPN to the SACE, which interfaces with the bearer channel of associated subscriber lines.
- / 19. A method of providing extensible service features to telephone service subscribers, comprising a step of: using a signaling protocol for exchanging signaling messages between a Content/Service Provision Node (C/SPN) and Subscriber Access Control Equipment (SACE) to deliver of an extensible payload of messages having an internal and separate component

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20. A method as claimed in claim 18, wherein the variability of the size of the payload is enabled by payload extensions that can be appended to messages.
21. A method as claimed in claim 20, wherein the messages support multiple extensions.
22. A method as claimed in claim 20, wherein the messages support multiple types of extensions.
23. A method as claimed in claim 18 wherein the component protocol is a message description protocol identified within a header of messages, and the message description protocol provides information about the type of the message in which it is contained, and further indicates an intended processing of data in at least one of: a field, a payload section, and a payload extension contained in the message.
24. A method as claimed in claim 18, wherein the call control messaging network comprises a Common Channel Signaling (CCS) network.
25. A method as claimed in claim 18, wherein the communication of the at least one of content and service information is conveyed by a Broadband Transport Network (BTN) through which the SACEs also perform virtual trunking.

26. A method as claimed in claim 18, wherein the signaling protocol is Session Initiation Protocol (SIP).
27. A method as claimed in claim 26, wherein the message description protocol of the SIP messages is Session Description Protocol (SDP).
28. A method of enabling a Content/Service Provision Node (C/SPN) having an interface with each of a call control messaging network and a Content/Service Messaging Network (C/SMN), to control a remote interface with a bearer channel of a subscriber line to enable at least one of content information and service feature information to be exchanged with a subscriber, said method comprising steps of:
 - a) sending content/service messages via the C/SMN from the C/SPN to a Call Server (CS) associated with the subscriber line;
 - b) receiving the content/service messages at the CS and relaying control signaling messages to a Subscriber Access Control Equipment (SACE) having an interface with the subscriber line;
 - c) executing directives contained in the control signaling messages at the SACE to perform any one or more of: collecting information from the bearer channel and sending information through the bearer channel; and
 - d) returning to the C/SPN at least one of: information collected by the SACE, and information related to the status of the SACE.

27. A method as claimed in claim 26, wherein the message description protocol of the SIP messages is Session Description Protocol (SDP).

28. A method of enabling a Content/Service Provision Node (C/SPN) having an interface with each of a call control messaging network and a Content/Service Messaging Network (C/SMN), to control a remote interface with a bearer channel of a subscriber line to enable at least one of content information and service feature information to be exchanged with a subscriber, said method comprising steps of:
- a) sending content/service messages via the C/SMN from the C/SPN to a Call Server (CS) associated with the subscriber line;
 - b) receiving the content/service messages at the CS and relaying control signaling messages to a Subscriber Access Control Equipment (SACE) having an interface with the subscriber line;
 - c) executing directives contained in the control signaling messages at the SACE to perform any one or more of: collecting information from the bearer channel and sending information through the bearer channel; and
 - d) returning to the C/SPN at least one of: information collected by the SACE, and information related to the status of the SACE.

- a) sending content/service messages via the C/SMN from the C/SPN to a Call Server (CS) associated with the subscriber line;
- b) receiving the content/service messages at the CS and relaying control signaling messages to a Subscriber Access Control Equipment (SACE) having an interface with the subscriber line;
- c) executing directives contained in the control signaling messages at the SACE to perform any one or more of: collecting information from the bearer channel and sending information through the bearer channel; and
- d) returning to the C/SPN at least one of: information collected by the SACE, and information related to the status of the SACE.

- b) receiving the content/service messages at the CS and relaying control signaling messages to a Subscriber Access Control Equipment (SACE) having an interface with the subscriber line;

- c) executing directives contained in the control signaling messages at the SACE to perform any one or more of: collecting information from the bearer channel and sending information through the bearer channel; and

- d) returning to the C/SPN at least one of:
information collected by the SACE, and
information related to the status of the SACE.

29. A method as claimed in claim 28, wherein the information collected includes at least one of: a digit sequence; a type of information requested; an information pattern, and an information mask.
30. A method as claimed in claim 28, wherein the information sent through the bearer channel comprises announcements played to the user of the subscriber line to provide a service feature.
31. A method as claimed in claim 28, wherein the information sent through the bearer channel comprises at least one of: information content, advertisement, music, and entertainment content.
32. A method as claimed in claim 28, wherein the content/service messages comprise Session Initiation Protocol (SIP) messages.
- / 33. A Subscriber Access Control Equipment (SACE) comprising:
- a) interfaces with a switch fabric, a Broadband Transport Network (BTN), and a messaging system for communicating with a Call Server (CS); and
 - b) a controller adapted to set up, tear down and cache virtual trunk connections through the BTN, and to interface with the bearer channel of subscriber lines to which it is connected to provide one of content and a service, as directed by the CS.
34. A SACE as claimed in claim 33, wherein the adaptation of the SACE to interface with the bearer channel

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includes enabling the SACE to play an announcement to a subscriber using a bearer channel of a subscriber line.

35. A SACE as claimed in claim 34, wherein the SACE is enabled to receive audio files from the CS, and send a content of the audio files through the bearer channel.

36. A SACE as claimed in claim 33, wherein the control messaging received from the CS is extensible and modifiable.

37. A Content/Service Provision Node (C/SPN) comprising:

- a) a first interface with a common channel signaling network;
- b) a second interface with a Content/Service Messaging Network (C/SMN); and
- c) a processor adapted to receive and process call control messages received at the first interface, and content/service messages received at the second interface and perform at least one of: transmitting a call control message through the first interface; and transmitting a content/service message through the second interface.

38. A C/SPN as claimed in claim 37, wherein the C/SPN, upon receipt of certain messages, maintains a status of, and executes a sequence of instructions to provide, at least one of content and a service to one or more telephone service subscribers.

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39. A C/SPN as claimed in claim 37, wherein the C/SPN accesses any one or more of: a database; the Internet; an intranet; and an application server, in the provision of at least one of content and a service feature.
40. A C/SPN as claimed in claim 39, wherein the C/SPN responds to call control messages as a stimulus to formulate and send content/service messages.

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